TABLE OF CONTENTS

PREFACE BY TRANSLATOR INTO ENGLISH..... v
PREFACE TO THE ENGLISH EDITION BY W.-E. GROUME-GRJIMAILO ix
PREFACE TO THE FRENCH EDITION, BY HENRY LE CHATELIER. xi
FOREWORD, BY W.-E. GROUME-GRJIMAILO..... xv

PART I

THE APPLICATION OF THE LAWS OF HYDRAULICS TO THE COMPUTATIONS FOR A REVERBERATORY FURNACE

CHAPTER
I. THE FUNDAMENTAL VIEWPOINT..... 1
II. EXPERIMENTS WHICH SERVE TO SHOW THE ANALOGY BETWEEN THE CIRCULATION OF THE FLAME AND THE MOVEMENT OF A LIGHT LIQUID WITHIN A HEAVY LIQUID..... 3
First Experiment..... 4
Second Experiment..... 7
III. THE CURRENT OF HOT GASES MAY BE COMPARED TO A STREAM OP WATER TURNED UPSIDE DOWN, OR INVERTED..... 8
IV. APPLICATION OF THE LAWS OF HYDROSTATICS TO HOT GASES 11
(a) The Draft Fallacy of Metallurgical Furnaces... 16
(ft) Hydrostatic Pressure within Metallurgical Furnaces and Their Flues..... 21
(c) Hydrostatic Pressure in Open-top Chambers Filled with a Light Gas..... 25
V. THE APPLICATION TO HOT GASES OP THE LAWS FOR THE FLOW OF LIQUIDS THROUGH AN ORIFICE IN THE BOTTOM OF THE RESER-VOIR..... 27
VI. RELATION BETWEEN THE HEAD, THE PRESSURE AND THE VELOCITY OF CURRENTS OF LIQUIDS AND GASES..... 32
VII. THE APPLICATION TO HOT GASES OF THE THEORY OF HYDRAULIC FLOW OVER THICK-CRESTED WEIRS..... 40
VIII. VELOCITY UNDER INVERTED WEIRS. RATIONAL CONSTRUCTION OF FURNACES OF THIS TYPE..... 52